Abstract

The Fremont and Plant Resources along the Colorado Wyoming Border

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Recent work in Wyoming, Utah, and Colorado is demonstrating the extent of maize agricultural may be extended into the canyons of the Green River. This paper will look at how the Fremont utilized plant resources along their northern frontier to extend their occupation northward. We will synthesize the results of recent excavations and surveys to explain the nature of Fremont agriculture north of the Gates of Ladore on the Green River.

The Green River Arch

The Green River flows southward through western Wyoming into a series of canyons the river has cut through the Uinta Mountain Range. The canyon land begins roughly where the Green River strikes the Rock Springs uplift north of present Green River Wyoming and extends southward to just north of Jensen Utah. The canyons contain both the artifacts and structured remains of the Fremont Culture. From a point near the confluence of the Green and Blacks Fork rivers, south through Flaming Gorge Reservoir, and to the Gates of Lodore, the Green River flows through a canyon and park area exhibiting distinct manifestations of the Fremont. The findings by both Loosle (2000,2001), Larson (2000) and the Buster Flats inventory (Gardner et.al. 2002), in conjunction with numerous other data collected from this region, suggest a strong Fremont presence in Browns Park, and throughout the region. [1]

[1]Portions of this paper are taken from Gardner et.al.(2002). Project personnel, in the Busters Flat Survey in Brown's Park recorded forty-nine archaeological sites (5MF5033-5MF5042 and 5MF5044-5MF5082), thirty-five isolated finds (5MF5043 and 5MF5083-5MF5116), and revisited eleven previously recorded prehistoric sites (5MF265, 5MF266, 5MF267, 5MF1751, 5MF2722, 5MF2723, 5MF4095,

Fremont Tradition

The Formative (post-Archaic) period in the eastern Great Basin, western Colorado Plateau, and north of the Colorado and Virgin Rivers, has been termed the Fremont tradition. Generally speaking, the Fremont's were mobile horticulturalists that continued a hunter/gatherer tradition in the divers environs of the region. The Fremont occupied the upper drainages of the Green River between A.D. 400 and A.D. 1250.

Investigators, since the first half of the 20th century, have argued over what constituted "Fremont" and "not Fremont." Most of the early work was predicated primarily on material cultural assemblages. Recognizable Fremont material includes architecture, rock art, granaries, a series of projectile point styles (Rose Spring/Rosegate, Uinta side-notched, and Cottonwood), basketry, "Fremont" pottery wares, anthropomorphic clay figurines, and specific types of ground stone tools. According to Madsen (1989:9-11) the Fremont tradition shares four distinctive attributes:

- One-rod-and-bundle basketry construction;
- Moccasins constructed from the hock of a deer or mountain sheep;
- Artistic representations, as either clay figures or rock art motifs, of trapezoidal anthropomorphs with elaborate ornamentation;
- A distinct coiled pottery tradition (Reed and Metcalf 1999:109)

Save for basketry, which is culturally diagnostic over the entire range of the Fremont (Adovasio 1980), none of the material culture inventory defines a coherent Fremont identity.

Madsen clearly pointed out that while the various Fremont groups used similar tools and artifacts, their methods of making a living varied greatly. The Fremont subsistence and settlement patterns "ranged from sedentary groups dependent on both domesticated and locally procured wild resources, to sedentary groups that relied primarily on local wild resources, to nomadic groups that depended on resources from a variety of ecological zones . . . " (Madsen 1982a:218). He also alludes to the fact that some Fremont peoples traded for corn rather than growing it (Madsen and Simms 1998:275). While there is a great deal of variability in how the Fremont subsisted, there were similarities in the material cultural remains they generated. Rock art, ceramics, baskets, Rosegate/Rose Spring projectile points, and granaries have similar characteristics throughout the area considered to contain Fremont. What is intriguing is the variability exhibited in the subsistence patterns. A theoretical shift has been proposed looking at the Fremont not so much as a cultural tradition but as a group of peoples behaving in a certain fashion to insure success in an environmental niche. Thus the Fremont should be examined "from the behavioral rather than a cultural perspective" (Simms 1990:1; Madsen and Simms 1998:276). It is instructive to view Fremont sites as part of a behavioral process; meaning it is good to look not so much at cultural assemblages but to evaluate the behavior they represent. The problem is that to successfully evaluate behavior, it is important to have data sets from a variety of excavated contexts. For example, it would be necessary to have macro floral records from excavated contexts at a variety of elevational zones that illustrate the nature and types of plant species being procured and processed in the Browns Park area. To

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5MF4310, 5MF4496, 5MF4497, and 5MF4890) during the course of the inventory. A total of 95 sites plus many of those recorded by Larson in 2000 (Larson 2000) were visited as part of this project taking the evaluated resources to over 100 evaluated resources.

better understand Fremont adaptations to the Green River basin, it is best to look at what has been previously documented in the area.

The Fremont tradition has been identified in Utah, western Colorado, and to a lesser degree in southwest Wyoming, and eastern Nevada. This tradition, as Reed and Metcalf (1999) clearly contend, is characterized by considerable variation. In recognition of this variation, there are a number of identifiable regional Fremont variants: Uinta, San Rafael, Great Salt Lake, Sevier, and Parowan (Reed and Metcalf 1999; Marwitt 1980). These variants were associated with geographically specific regions and express some overlap in trait characteristics. The Uinta variant, which was localized in northeast Utah and northwest Colorado, is of particular interest to understanding the horticulturalists in Brown's Park. The Uinta Fremont encompasses three major topographical areas: the Uinta Basin, the Douglas Creek/White River drainage system, and Dinosaur National Park/Green River Arch. When this group occupied the region is still being defined, but a general acceptance of occupation of northwest Colorado from about AD 400 to the late 1500s is gaining acceptance (Reed and Metcalf 1999:114; Creasman and Scott 1987; Liestman 1985; and Truesdale 1993a, b).

Since the early 1980s, investigators have refocused their efforts on understanding the nature of the variation in relation to the larger questions of Fremont settlement and subsistence strategies and the relationships to climatic conditions and environment. Some investigators (Madsen and Lindsay 1980 and Madsen 1979) have proposed additional distinctions for Fremont regional variants. They formally differentiate between the Fremont, located east of the Wasatch Range in the Colorado Plateau, which included Uinta and San Rafael variants, and the Sevier, located west of the Wasatch Range in the Great Basin and incorporating the Parowan, Great Salt Lake, and Sevier variants. Larger villages occupying optimal arable land and access to available perennial water characterize the Sevier macro group region. The region containing the Uinta macro group overall had fewer optimal locations for horticulturalists and resulted in fewer large villages. Madsen and Lindsay (1980) did not consider their differentiation a cultural boundary but instead recognized distinctions based on settlement and architecture resulting from the exploitation of contrasting environments. Madsen (1979) has proposed an additional distinct prehistoric archaeological unit: "Fremont, Sevier and an unnamed Plains-derived culture in the Uinta Basin."

In order to better understand Fremont adaptations along the Green River corridor in northwest Colorado, an examination of the Fremont occupation chronology seems appropriate. Our focus is the Uinta Variant of the Fremont. We are looking at the Dinosaur national Park /Green River Arch Subgroup, but more specifically the Green River Arch that extends north from the Gates of Ladore into Wyoming.

Regional Occupational Chronology

Marwitt (1986) describes the Uinta Fremont as inhabiting small hamlets or rancherias consisting of 4-6 small, shallow pit houses. The cultural deposits associated with these sites are usually thin, suggesting short, possibly seasonal occupations. He noted that habitation sites were typically located on knolls, buttes, or hill slopes above creek flood plains. Anthropomorphic figurines and "Utah" metates are typically absent from Uinta variant sites. Marwitt's views and characterizations appear to be somewhat dated, especially when considering his view of the temporal parameters. He identified the dating of Uinta Fremont as between AD 650-950, with withdrawal from the area no later than AD 1000. A substantial amount of data has been gathered which contradict this stance.

Reed and Metcalf (1999:18) have divided the Fremont into four time periods in western Colorado:

Early Fremont	AD 1-550
Scoggin	AD 550-1050
Winger	AD 1050-1300
Texas Creek Overlook	AD 1300-1600

Spangler (1999) examined the patterns from radiocarbon dating of Uinta Fremont occupations based on some 400 radiocarbon assays. He suggests that the dates for earliest Uinta Fremont are AD 250 and the latest are AD 1300. This roughly corresponds with the date of AD 1300 from the corncob within the granary at Site 5MF5067.

The departure of the Fremont from the area is not clearly understood. It has been speculated that the Fremont dispersed into the surrounding regions or that the Utes that came into the area and assimilated Fremont groups. Up until two decades ago, there was a universal belief that the Fremont departed the region around AD 1200. The radiocarbon date derived from Site 5MF5067 surpasses that date by 100 years. This suggests that Fremont groups inhabited the Green River Valley well beyond AD 1200. Three other sites within the region have provided similar data. Site 42UN1103, located south of the Buster Flats project area in Dinosaur National Monument, produced dates of AD 1350 and AD 1520. Corncobs from Site 5MF379 and Site 5MF373, in the Blue Mountain area, were radiocarbon dated at AD 1130 and AD 1550 (Creasman and Scott 1987). All of these dates extend the Fremont occupation in northwest Colorado well into A.D. 1500.

Briefly, the Uinta Fremont Variant does exhibit unique local qualities. In the Douglas Creek core area, fortified structures, habitation sites, and granaries sit atop rock ledges or on sandstone outcrops. In the Uinta Basin a variety of circumstances led to diverse types of settlements and storage systems. In Brown's Park the Fremont constructed small granaries in remote localities and made distinctive trapezoidal human rock art figures. Here we will refer to the Douglas Creek and Dinosaur National Park/Browns Park (Green River Arch) subgroups as the Eastern Uinta Fremont. More our focus is on the Green River north from the Gates of Ladore into Wyoming.

Fremont Rock Art

In southwest Wyoming and extreme northwestern Colorado and northeastern Utah the most readily identifiable cultural features associated with the Fremont are Rock Art. Fremont Rock art is one of the most prominent and distinctive traits associated with the Fremont. A number of different styles have been identified.

Burton (1862) provided one of the first descriptions of the Fremont tradition in Dinosaur National Monument. His focus, however, was primarily on "Fremont rock art." Looking at the attributes of rock art along the Yampa and Green River, he noted distinctive types that include mountain sheep, trapezoidal figures, spirals, and anthropomorphs. Unfortunately, rock art is difficult to attribute to a specific person or group. Yet, the figures described were Fremont in Burton (1862) and were seen by Cole (1987) in Vermillion Canyon on the east side of Browns Park. Similar panels have been noted at Minnies Gap, Mud Springs, and on the west side of Flaming Gorge in Wyoming.

An identifiable Fremont presence with the full suite of cultural adaptations never expanded much beyond the Colorado state line. There were Fremont incursions or contact with indigenous groups occupying southwest Wyoming. There has never been archaeological evidence, either conclusive or even anecdotal, about the growing of crops, especially corn, in southwest Wyoming. Southwest Wyoming has too short a growing season for corn. However, protected locales along the Green River valley in Browns

Figure 1 This is the granary site 5MF5067. (Courtesy Hal Keesling)

Park and Flaming Gorge apparently were protected enough. Site types across the state line in Wyoming are task-specific or resource extraction locales, where small task groups from the south visited for short periods to procure various resources such as tools tone or game, possibly through trade with the indigenous groups in Wyoming. Smith (1992) examined over 20 sites in southwest Wyoming with Fremont pottery that lacked other Fremont traits, indicating that there was contact with the area to the north but not settlement by Fremont groups. Creasman et al. (1988) examined sites with ceramic assemblages along the common border between Colorado and Wyoming. The focus was to determine whether Fremont ceramics were present. Fremont or Fremont-like ceramics were noted approximately A.D. 1150.

Fremont Subsistence Patterns

Subsistence practices employed during the Formative period differed from the preceding Archaic. Instead of a nomadic to semi-nomadic foraging gatherer-hunters, Fremont groups in northwest Colorado utilized a strategy of foraging mixed with corn horticulture to supplement the diet. Obviously this could only occur in areas with growing seasons of sufficient length and seasonally available moisture. The introduction of corn is a fundamental change that distinguishes the Fremont from earlier occupants of the area.

Plant resources constituted a significant portion of the Fremont diet. Acorns, pinyon nuts, and cattail were significant food resources. Cattail pollen, for example, provides 3,000 to 6,000 Kcal per hour of work (Barlow 2002: 77). Cultivated crops included Chenopodium and maize. While Chenopodium as a cultigen among the Fremont has not received as much attention as corn, it possibly made up a significant part of their diet and was seemingly grown in most niches the Fremont occupied for any period of time. Corn cultivation, however, has been considered as a diagnostic attribute of the Fremont and their granaries considered a cultural marker. Granaries extend along the Green River north to the present Wyoming border. The granaries are relatively small, but most contain corn cobs in the fill.

As Hadden (2002) has noted the emphasis on corn cultivation as part of the Fremont adaptation may have been over emphasized in the past. It clearly appears the cultivation of Chenopodium may have been a mainstay in Fremont agriculture. Smith (1988), Scott (20010 and Clarke (2002) have shown the diversity of plants and Chenopodium in the archaeological record in the upper Green River drainage basin. But it is corn that, rightly or wrongly, serves as a diagnostic marker in Fremont sites.

Clarke (2002) found that Chenopodium, gambles oak, and cattail are all evident in the archaeological assemblage in southwest Wyoming in the period spanning 400AD to 1500AD. Pinon is noticeably absent in the assemblage. Gambles oak and cattail are not dominate, but Chenopodium is present in several sites (Clarke 2002; Smith and Creasman 1988). Chenopodium may have been the cornerstone of Fremont agriculture but the Fremont were known for cultivating corn. Corn, along the upper Green River has only been found, as far north as Dutch John, Utah (Loosle 2001). This, however, is not far from the Wyoming border. More the granaries recorded by Day and Dibble (1963) are just inside the Utah border. Two things are clear. First, corn and Chenopodium are part of Fremont culture (Hadden 2002). Second, the principle high calorie food sources used by the Fremont have been found in the archaeological record of southwestern Wyoming.[2] But this second note is qualified with the fact that the macro floral remains recovered in southwestern Wyoming ***can not*** be directly associated with the Fremont. Nonetheless, future research might be geared toward looking for plant remains that indicate association with the Fremont, especially in the canyons of the Rock Springs Uplift drained by the Green River.

In Dinosaur National Monument, corn from excavated sites has been found in all four of the major Fremont phases. Just 22 miles south of the project area, corn was recovered from primary contexts in rock shelters. Liestman (1985) found corn in a dated context spanning the period AD 400 to AD 1570. Interestingly, the wood in the most recently constructed feature, a retaining wall that partially covered the mouth of the shelter, returned outside ring dates of AD 1568 and AD 1585 (Liestman 1985:32, 28). The

[2] For energy returns for foraging and farming see Barlow (2002:77).

shelter also contained at least one and possibly two storage cists. The first cist was slab-lined; the second was a possible clay-and-wattle storage cist. Liestman (1985:ii) felt that the latter dates indicate a late date for a group having "Fremont-like characteristics" and utilizing corn. Truesdale (1993) found corn in the Juniper Lodge Shelter in a component dating to 399 BC, making it the oldest corn found in Utah (Truesdale 1993:32-33). There has been some argument that this date might be artificially early (Truesdale 1993a: 33). Truesdale also found 104 corn kernels that dated to AD 408 (Truesdale 1993b: 33). What Liestman and Truesdale do document is that corn is present along the Green River for a period spanning AD 400 and AD 1570 and possibly longer.

It has long been known that granaries existed in northwest Colorado and southwest Wyoming, but many of these granaries had either not been adequately recorded or not recorded at all. Over the last ten years, this has changed. More significantly, the number of archaeological sites in northwest Colorado and northeast Utah yielding corn has increased dramatically. The earliest recognition of granaries along the Green River north of Browns Park was found in Day and Dibble's (1963) inventory of the Flaming Gorge reservoir. One of the granaries at Site 42DA30 is similar to the granary found at Site 5MF2723 (Day and Dibble 1963:44-45). Another researcher (Loosle 2000) has found corn in an open site north of the Green River. More recent work has resulted in the description of Fremont tradition granaries downstream of the Flaming Gorge reservoir (Loosle 2001). Stretching southeast from Dutch John, Utah, to near where the Green River enters Browns Park, Loosle (2000, 2001) has found granaries and corn at several sites. Most of this material is near the Green River in Red Canyon. Other regional investigations (e.g., Loosle and Johnson 2001; Markley and Loosle 2001) support the results from the Buster Flats inventory suggesting a high degree of variability in the storage systems spanning the area between Red Canyon and the Gates of Lodore.

Fremont Granaries

While there is a great deal of variability in the types of granaries the Fremont constructed among the eastern Uinta Variant there are three generalized types. The first is relatively large (a minimum of 1m on both the x and y axis). This first type is generally not located far from habitation sites or fields. The second type is a waddle and daub over a woven wooden stick structure. These are evident in fields and generally close to habitation sites. Waddle and daub structures do, however, sometimes appear in remote areas. The third type is relatively small and not near fields nor habitation sites (in general at least one of the axises will be less than 70cm long). These smaller granaries are in elevated areas sometimes in cliff faces and often in secluded areas. This last type is all that has been found in Browns Park and along the Upper Green River. For consistency sake the smaller granaries will be refereed to as "Brown's Park Granaries." It should be noted, however, that in intensively occupied areas, like Douglas Creek and Nine Mile Canyon, all three types are present.

From the Flaming Gorge dam south to the Gates of Ladore granaries with corn in the fill are found in remote overhangs, generally in elevated areas above the Green River (Day and Dibble 1963; Markley and Loosle 2001; Gardner et.al. 2002). The granaries exhibit a great degree of variability, but consistently they are relatively small. Some are made from basketry, covered with mud, and are placed in rock overhangs (Markley and Loosle 2001). Some are wet laid sandstone structures that are less than a meter high. The exterior of these small sandstone granaries sometimes exhibit a smooth mud finish. Dibble and Day's (1963) granaries are more of a sandstone slab type feature. Others, like 5MF5067, are woven serviceberry, willow, or mountain mahogany cribs covered with daub. This waddle and daub structure is in a well-protected area. It is in a small cave and is possible a variant of the waddle and daub

granary excavated by Creasman in Douglas Creek to the south (Creasman 1981a and b). In terms of macro floral corn has been found in many of these granaries, especially those in the Buster Flats area. One corncob in the granary at Site 5MF5067 returned a date of AD 1300 (Gardner et.al. 2002).

Questions surrounding the granaries in Brown's Park abound. Why are the granaries in such remote locations? Why do the granaries exist in areas where today corn is not grown? The problem is in the Brown's Park area potential challenges to growing corn exist. First water, except along the Green River and at seeps and springs, is not dependable. Second the elevation is high enough that frost can strike in June and August. Third, summer nights are too cool for corn to grow. So the question is when was corn grown in Brown's Park?

Currently there are some years when corn can be grown in Browns Park. In those years moisture would fall at the right time or irrigation from the Green River would substitute for rain. But more importantly there would be long periods without frost and the nights would be warmer. In terms of night time heat, the corn could be planted in areas with good thermal retention of heat so that some growth continued into the evening. It is felt, however, that there might not be consecutive good years where there was enough warmth to grow corn. For example, you might have good rains but short growing seasons. What might have happened is that the Fremont learned, over time, what years would provide optimal returns for their efforts and corn would be planted during good years. Then comes another concern. How would you store seeds for future "plantings" over extended periods of time? To store corn seeds over time the granary would have to be sealed and dry. Thus a well constructed and tightly sealed granary would be desirable.

The volume of the granaries in the Buster Flats inventory area is not known –but it is suspected they range form two to four bushels of corn. While this is an adequate size, the granaries would hold little in terms of food storage. If, however, the granaries are holding seed corn for the next year or future year's plants, the granaries size is reasonable. Since the Fremont in the area are mobile and would not stand guard over their seed granaries, placing them away from fields and habitation sites makes sense. More putting the granaries in remote isolated areas is logical as the granaries are not in areas where people normally travel. Clearly the Buster Flats granaries are away from both fields and habitation sites.[3]

What needs to be understood is that in Browns Park corn cultivation was pressed to its environmental limits and apparently the farmers were successful. What needs to be better understood is how far north did this agricultural effort extend? Was the extension just corn cultivation or were other plants like Chenopodium cultivated? With Fremont granaries evident right up to the Wyoming border and Fremont Petroglyphs inside Wyoming, what impact did the Fremont have in the Wyoming Basin?

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[3]There maybe a habitation site in a few rock shelters nearby, but these are not extensive occupation sites.

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